

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference R 02129	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR2003/002781	International filing date (day/month/year) 22 septembre 2003 (22.09.2003)	Priority date (day/month/year) 23 septembre 2002 (23.09.2002)
International Patent Classification (IPC) or national classification and IPC C07C 67/343, 69/618, 69/608, C07B 37/00, C07D 213/55, 333/24, C07C 69/65, 69/734		
Applicant RHODIA CONSUMER SPECIALTIES LIMITED		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of _____ sheets.</p>	
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>	

Date of submission of the demand 29 mars 2004 (29.03.2004)	Date of completion of this report 13 December 2004 (13.12.2004)
Name and mailing address of the IPEA/EP	Authorized officer
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# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/002781

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☒ the description:  
 pages \_\_\_\_\_ 1-14 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
 pages \_\_\_\_\_ 1-21 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-21	YES
	Claims		NO
Inventive step (IS)	Claims	1-21	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-21	YES
	Claims		NO

**2. Citations and explanations**

1. This report makes reference to the following documents:

- D1: W. C. STILL, C. GENNARI: TETRAHEDRON LETTERS, Vol. 24, No. 41, 1983, pages 4405-4408, XP001149087
- D2: J. MOTOYOSHIYA: TRENDS IN ORGANIC CHEMISTRY, Vol. 7, 1998, pages 63-73, XP008017925
- D3: J. E. MCMURRY ET AL.: TETRAHEDRON LETTERS, Vol. 29, No. 21, 1988, pages 2531-2534, XP002244910
- D4: GÉRARD SOULA: JOURNAL OF ORGANIC CHEMISTRY, AMERICAN CHEMICAL SOCIETY, EASTON, US, Vol. 50, No. 20, 4 October 1985, pages 3717-3721, XP002105964, ISSN: 0022-3263

**2. Novelty**

- 2.1 The present application relates to a process for preparing olefins by a Horner-Wadsworth-Emmons reaction (a variant of the Still et Gennari reaction) using a tris-(polyoxaalkyl)-amine as sequestering agent (claims 1 to 21).

- 2.2 Document D1 shows the Horner-Wadsworth-Emmons reaction (a variant of the Still et Gennari reaction) using the 18-crown-6 ether to improve diastereoselectivity.
- 2.3 Document D2 shows (Z-selective) Horner-Wadsworth-Emmons reactions using the 18-crown-6 ether.
- 2.4 Document D3 shows a Wittig reaction using a tris-(polyoxaalkyl)-amine (TDA-1) sequestering agent as phase transfer catalyst.
- 2.5 Document D4 shows tris-(polyoxaalkyl)-amine sequestering agents (such as TDA-1) as phase transfer catalysts.
- 2.6 The subject matter of claims 1 to 21 is therefore novel (PCT Article 33(2)).
3. Inventive step

Document D1 is considered to constitute the prior art closest to the subject matter of claim 1.

The present invention can therefore be considered to address the problem of devising an alternative process for the diastereoselective preparation of olefins.

The solution to this problem, as proposed in claim 1 of the present application, is considered to involve an inventive step (PCT Article 33(3)) for the following reasons:

Although tris-(polyoxaalkyl)-amine sequestering

agents (such as TDA-1) are known as phase transfer catalysts (see D3 and D4), the prior art (D1 to D4) does not contain any indication that would prompt a person skilled in the art facing this technical problem to modify or adapt the closest prior art (D1) and to replace the crown ethers (such as 18-c-6) by tris-(polyoxaalkyl)-amine sequestering agents.